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**Jennie O Foods Inc.
Roasted Turkey Breast Trial
March 21, 2000**

The following report concerns a cooking trial conducted by Unitherm Food Systems Inc. on behalf of Jennie O Foods Inc.

The product consisted of eight pieces of injected turkey breast whole muscle with the skin on. The dimensions of the product uncooked, were approximately 10" x 6" x 3" and the average weight was 4.39 lb.

The product was placed inside an unsealed vacuum pack bag with the open end folded underneath the product. It was chilled to below 40° F and then roasted in a Unitherm rotisserie for 86 minutes at 390° F. The internal temperature was measured at 162° F after roasting.

The average yield was 77.8%. The dimensions of the product after roasting were approximately 8½" x 5" x 3" and the average weight was 3.42 lb.

The color was uniformly brown with dark highlights where the purge had caramelized. On all the samples, the bag had shrunk and had defined the shape of the meat. In some places the bag had burned. The results matched the sample provided by Jennie O Foods. It should be noted however, that the sample measured 7" x 4½" x 3" and weighed only 2.64 lb suggesting that it was a significantly smaller piece compared to the pieces we used for the trial. If this is the case, we estimate the processing time on the smaller cut of meat would be near to 80 minutes.

It can also be seen that the core temperature continued to rise after the meat had been taken out of the oven. This could be used to reduce the processing time.

Enclosed are the data sheets and the temperature profile taken during the trial.

Regards

David Atkinson
Area Sales Manager

U-04486

PTO-004244

UNITHERM Food Systems, Inc.										Date: March 21, 2000	
Cooking Trial Data					Product: Turkey Breast					Supplied By: Jennie O Foods	
Test #	Belt Speed	Cook Time	Temperatures C.	Start Weight	Cooked Weight	Yield	Internal Temp. F.	Remarks			
			Zone 1								
#1	5100	86min	390°F	3.95	3.055	77.3%	162°F	Weights taken with bag on.			
#2	"	"	"	4.395	3.39	77.1%	163°F				
#3	"	"	"	4.27	3.525	82.6%	162°F				
#4	"	"	"	4.505	3.385	75.1%	164°F				
#5	"	"	"	4.340	3.335	76.8%	162°F				
#6	"	"	"	4.58	3.61	78.8%	163°F				
NOTES											
#1											
#2											
#3											
#4											
#5											
#6											

Date: March 21, 2000

UNITHERM Food Systems, Inc.

Cooking Trial Data

Test #	Belt Speed	Cook Time	Product: Turkey Breast			Yield	Supplied By: Jennie O Foods		
			Temperatures C.		Start Weight		Cooked Weight	Internal Temp. F.	Remarks
			Zone 1	Zone 2					
#7	5100	86min	390°F	81°C	4.325	3.285	76%	163°F	
#8	"	"	"	82°C	4.76	3.745	78.7%	163°F	/
#3									
#4									
#5									
#6									

NOTES

#1

#2

#3

#4

#5

#6

UNITHERM Food Systems, Inc.

Date: March 23, 2000

Cooking Trial Data

T st #	Belt Speed	Cook Time	Product: Processed Ham				Supplied By: Iowa Ham		Remarks
			Temperatures C.		Start Weight	Cooked Weight	Yield	Internal Temp. F.	
			Zone 1	Attn/Held					
#1	13 1/3	10m 32s	650°F		15.06 lb	14.5 lb	96.3%	43.9°F	dimensions cylindrical 6 1/2" x 12 1/2" virginia dip. cooked dimensions 6 1/2" x 12 1/2"
#2	"	10m 32s	650°F		12.14 lb	11.66 lb	96.0%	40.5°F	dimensions: whole 9 1/2" x 7 1/2" x 4 1/2" virginia dip. cooked dimensions 9 1/2" x 7 1/2" x 4 1/2"
#3	"	10m 32s	650°F		14.86 lb	14.355 lb	96.6%	44°F	dimensions cylindrical 6 1/2" x 12" smoke cooked dimensions 6 1/2" x 12"
#4	"	10m 32s	650°F		14.85 lb	14.335 lb	96.5%	40°F	dimensions cylindrical 6 1/2" x 12 1/2" virginia dip. cooked dimensions 6 1/2" x 12"
#5	"	10m 32s	650°F		11.8 lb	11.39 lb	96.5%	40.6°F	dimensions: whole 7 1/2" x 10" x 4 1/2" virginia dip cooked dimensions 7 1/2" x 9 1/2" x 4 1/2"
#6	11 1/3	12min 10s	600°F		15.05 lb	14.5 lb	96.3%	43°F	dimensions cylindrical 6 1/2" x 12 1/2" smoked. cooked dimensions 6 1/2" x 12"

NOTES

#1 Slightly too much dip used. Core temperature didn't change. 1" in rose to 63°F. Start temperature: 43.9°F

#2 Good color, matches sample. Start temperature 40.5°F

#3 Color yellow-brown. This is due to the water content of the product needs a lower pump. Start temperature 44°F

#4 Good color, matches sample. Start temperature 40°F

#5 Good color, matches sample. Start temperature 40.6°F

#6 ~~Good color, matches sample~~ Color yellow-brown. see comments for sample #3.

UNITHERM Food Systems, Inc.										Date: March 23, 2000	
Cooking Trial Data											
		Product: Roasted Ham				Supplied By: Iowa Ham					
Test #	Belt Speed	Cook Time	Temperatures C.		Start Weight	Cooked Weight	Yield	Internal Temp. F.	Remarks		
			Zone 1	Zone 2							
#7	11H3	12 min	600°F		12.97 lb	12.53 lb	96.6%	44°F	dimensions black barrel 11 3/4" x 6" x 4 1/2" Smoked. Cooked dimensions 11 1/2" x 6" x 4"		
#8	11H3	12 min	600°F		13.01 lb	12.57 lb	96.6%	44°F	dimensions black barrel 11 3/4" x 6" x 4 1/2" Smoked. Cooked dimensions 11 1/2" x 5 3/4" x 4"		
#9											
#10											
#11											
#12											
#13											
#14											
NOTES											
#7 Color brown. This is due to high water content. Some no edges stained											
No burn. Start temperature 44°F											
#8 As above											
#3											
#4											
#5											
#6											

UNITHERM Food Systems, Inc.										Date: APRIL 8, 2000
Cooking Trial Data					Product: PROCESSED HAM					Supplied By: FOWA HAM
Test #	Belt Speed	Cook Time	Temperatures C.		Start Weight	Cooked Weight	Yield	Internal Temp. F.	Remarks	
			Zone 1	Zone 2						
#1		18 min	475	Fan 204g	11.825	11.59	98%	Core 38.1°F 1" in 58°F Surface 120°F	Core temp at start 38.1°F. 1R Grill dwell time 2 minutes. Loaf	
#2		23 min	475	Fan 204g	11.84	11.52	97.3%	Core 38.1°F 1" in 62°F Surface 120°F	Loaf	
#3		28 min	475	Fan 204g	11.75	11.31	96.3%	Core 38.1°F 1" in 68°F Surface 120°F	Loaf	
#4		28 min	475	Fan 204g	14.74	14.1	95.7%		Barrel width ways across oven belt	
#5		18 min	475	Fan 204g	12.355	12.60	98.9%		Watered Black	
#6		25 min	475	Fan 204g	12.995	12.36	95.1%		Barrel Length ways across oven belt	
NOTES										
#1 samples 1, 2 & 3 show the variation in color for different dwell times. Lower temperatures do not allow the liquid smoke to cure. The length of time the ham is in the 1R Grill controls the amount of liquid smoke absorption.										
#3 The liquid smoke used was Charcol Supreme Poly from Red Arrow at 75% concentration.										
#4										
#5 Placing the barrel product length ways on the belt reduces the highlighting on the ridges.										
#6 The color achieved was very close or the same as the sample.										

Bill Chisler

UNITHERM Food Systems, Inc.										Date: April 8, 2000
Cooking Trial Data										
Test #	Belt Speed	Cook Time	Product: Processed Ham		Start Weight	Cooked Weight	Yield	Internal Temp. F.	Remarks	Supplied By: Iowa Ham
			Temperatures C.							
			Zone 1	Zone 2						
#1		25 min	475	Fan 2043	14.78	14.255	96.4%		Watered block	
#2										
#3										
#4										
#5										
#6										
NOTES										
#1 see notes on page 1.										
#2 The sample on this sheet ended up as floor meat. Do not eat and be aware that the yield may be misleading.										
#3										
#4										
#5										
#6										

Bob Crisp

UNITHERM Food Systems, Inc.										Date: MAY 11, 2000
Cooking Trial Data										
Te t #	Belt Speed	Cook Time	Product: Processed Ham		Start Weight	Cooked Weight	Yield	Internal Temp. F.	Remarks	Supplied By: Iowa Lane Part 3
			Zone 1	Zone 2						
#1		18 min	475°F	Fan 2043	12.265	11.73	95.64%	37°F	liquid smoke dilution 50% 1R grill for 2 min	
#2		18 min	475°F	Fan 2043	12.060	11.555	95.81%	37°F	liquid smoke dilution 50% 1R grill for 2 min	
#3		10 min	650°F	Fan 2043	11.7	11.37	97.18%	39°F	Virginia dip dilution 0% 1R grill for 2 min	
#4		10 min	650°F	Fan 2043	11.955	11.56	96.7%	39°F	Virginia dip dilution 0% 1R grill for 2 min	
#5										
#6										
NOTES										
#1	Recommended chill time 35 minutes @ -10°F									
#2	" " " " " "									
#3	Recommended chill time 20 minutes @ -10°F									
#4	" " " " " "									
#5	Contamination of the dip may have occurred on sample #4. There was an odd smell coming from it prior to going into the oven.									
#6	[Signature]									